



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: U.S. MAIL STOP 0001 P.O. BOX 218
P.O. Box 1450
Alexandria, Virginia 22311-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/066,784	02/06/2002	Marcus Emile Joannes Boonman	P 290647 P-0233.010-US	4534

909 7590 07/01/2003
PILLSBURY WINTHROP, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

KIM, PETER B

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/066,784

Applicant(s)

BOONMAN ET AL.

Examiner

Peter B. Kim

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 62003. 6) ☐ Other: _____

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

Claims 7-10 are objected to because of the following informalities: Regarding claim 7, "said second object table" lacks antecedent basis. Appropriate correction is required.

The following art rejections of Claims 7-10 are based on the examiner's best understanding of those claims despite the antecedent basis problem.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, and 6-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Jain et al. (Jain) (6,304,316).

Jain discloses in Fig. 1 and 7, a lithographic projection apparatus and method comprising a radiation system (17), a support structure (9) to support patterning structure (2), a substrate table (10) to hold a substrate (1), a projection system (5, 14, 7) to project the pattern onto a target portion of substrate with at least one adjustable optical element capable of changing the shape of

the focal plane (Fig. 1, ref 14 and Fig. 7, ref 22), a controller (8) to control the adjustable element to improve the focal plane conformity to the surface contour of the exposure area. Jain discloses controller which calculates desired adjustment to adjustable element in advance of the exposure (col. 8, lines 4-22), and Jain discloses a sensor (15) to measure the position of the substrate surface at a plurality of points during an exposure (col. 8, lines 34-52). Jain discloses an actuator (11) to move the substrate table to a desired position and orientation. Jain discloses the adjustable element which is a field-curvature correction lens (14, col. 9, lines 5-63) and a piezoelectric actuator to change the shape of a reflector (22, col. 11, lines 7-22).

Claims 1, 6-10, and 13-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Den Brink (5,801,832).

Van Den Brink discloses a lithographic projection apparatus (Fig. 1) and method comprising a radiation system (LA), a support structure (MT) to support patterning structure (MA), a substrate table (WC) to hold a substrate (W), a projection system (PL) to project the pattern onto a target portion of substrate with at least one adjustable optical element (col. 12, lines 20-25) capable of changing the shape of the focal plane, a controller (SPU) to control the adjustable element to improve the focal plane conformity to the surface contour of the exposure area. Van Den Brink discloses controller which calculates desired adjustment to adjustable element in advance of the exposure, and Van Den Brink discloses a sensor to measure the position of the substrate surface at a plurality of points during an exposure (col. 12, lines 20-45). Van Den Brink discloses an actuator (AC) to move the second object table to a desired position and orientation.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain et al. (Jain) in view of Wakamoto et al. (Wakamoto) (6,118,515).

Jain discloses the claimed invention as discussed above; however, Jain does not disclose a memory to store data representative of the surface contour. Wakamoto discloses in col. 8, lines 25-54, a lithographic projection apparatus comprising a memory to store data representative of the substrate surface contour to maintain proper focus of the projection optical system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide the memory of Wakamoto to the invention of Jain in order to more efficiently in a less time consuming manner correct the focus as taught by Wakamoto in col. 3, line 55 – col. 4, line 21.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Den Brink in view of Wakamoto et al. (Wakamoto) (6,118,515).

Van Den Brink discloses the claimed invention as discussed above; however, Jain does not disclose a memory to store data representative of the surface contour. Wakamoto discloses in col. 8, lines 25-54, a lithographic projection apparatus comprising a memory to store data representative of the substrate surface contour to maintain proper focus of the projection optical system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of

Art Unit: 2851

invention to provide the memory of Wakamoto to the invention of Van Den Brink in order to more efficiently in a less time consuming manner correct the focus as taught by Wakamoto in col. 3, line 55 – col. 4, line 21.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Kim whose telephone number is (703) 305-0105. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays during the same hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703 308 2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9318 for regular communications and 703 872 9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306 3431.



Peter B. Kim
Patent Examiner
June 29, 2003